DOCUMENT RESUME

ED 271 503 TM 860 412

AUTHOR Moon, Charles E; And Others
TITLE A Meta-Analysis of Suggestopedia, Suggestology, Suggestive-accelerative Learning and Teaching (SALT), and Super-learning.
PUB DATE Apr 86
NOTE 13p.; Paper presented at the Annual Meeting of the American Educational Research Association (70th, San Francisco, CA, April 16-20, 1986).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cognitive Processes; Control Groups; Educational Research; *Effect Size; Elementary Secondary Education; Holistic Approach; *Language Processing; Learning Theories; *Meta Analysis; Outcomes of Education; *Psychoeducational Methods; Research Methodology; *Second Language Learning; *Suggestopedia; Synthesis; Validity

ABSTRACT

Forty studies using one or more components of Lozanov's method of suggestive-accelerative learning and teaching were identified from a search of all issues of the "Journal of Suggestive-Accelerative Learning and Teaching." Fourteen studies contained sufficient statistics to compute effect sizes. The studies were coded according to substantive and methodological characteristics, including type of outcome, type of treatment, and degree of internal validity. The dependent variables were measured on final status to achieve greater comparability. Studies reporting results using difference scores or residuals were not included, nor were studies that reported statistics from which effect sizes could not be recovered. All of the studies in the final set used a control group as the reference for contrasting various suggestology treatments. The distribution of effect sizes over all categories and outcomes was leptokurtic and positively skewed. The overall performance of subjects under suggestology was three-quarters of a standard deviation higher than the average performance of subjects under control conditions. The evidence seems to support the conclusion that the Lozanov method with explicit suggestion is more effective than untreated controls relative to foreign language acquisition, foreign language retention, affective attributes, and cognitive achievement and creativity. A three-page list of references concludes the report. (LMO)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED271503

A Meta-analysis of Suggestopedia, Suggestology, Suggestive-accelerative Learning and Teaching (SALT), and Super-learning

Charles E. Moon, Gary F. Render, Deborah R. Dillow

University of Wyoming

Darrell W. Pendley

Albany County School District #1

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

C. E Moon

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

A paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, April 16-20, 1986.

BEST COPY AVAILABLE

TM 860 412

Introduction

It has been three years since the National Commission on Excellence in Education. Resulting from that commission has been an increased assessment of the many and varied aspects of learning and education. There have been many recommendations to adjust the educational system, structure, and methods, to increase effective learning.

One of the potentially positive aspects of this national attention to education is that the available and ever increasing empirical knowledge in human learning may be scrutinized by those in positions to initiate changes in the educational community.

One area of research that continues to offer increased empirical knowledge and promise for more effective and efficient learning is the area of suggestive-accelerative learning and teaching (e.g., Baur & Eichhoff, 1981).

Developed by Dr. Georgi Lozanov (1971, 1975) suggestive-accelerative learning and teaching recognizes the potential of the unconscious processes in humans and utilizes this unconscious mental activity in increasing recall of old information and in learning new.

Utilizing and refining the methods of relaxation, positive suggestion, pacing of material, music and yoga breathing, he produced a method that has been found to be generally effective in learning and retaining what is learned, originally in foreign language acquisition..

The Lozanov method allows an indirect suggestive atmosphere conducive to learning to be established which supposedly produces a

wholistic balance of mind and body and conscious/unconscious. In this atmosphere a visual and verbal suggestion format of delivery is used, interspersed at specific points with relaxation suggestions and/or exercises. At the time of language instruction soft Baroque music is played. Verbal messages/instructions about positive expectations that learning will take place are also given.

Though developed primarily for foreign language acquisition, Lozanov's methods have been adapted and applied to other types of outcomes, such as attitudes and creativity, with measurable success (e.g., Schuster, Prichard, & McCullough, 1981).

Method

Forty studies using one or more components of Lozanov's method to accelerate learning were identified from a search of a complete set of issues of the Journal of Suggestive-Accelerative Learning and Teaching (now called the Journal of the Society for Accelerative Learning and Teaching). Fourteen studies contained sufficient statistics to compute effect sizes.

The studies were coded according to substantive and methodological characteristics. One substantive characteristic was type of outcome. A study was coded "1" if it measured foreign language acquisition, "2" if it measured foreign language retention, "3" if it measured an affective attribute, such as attitude or self-concept, or "4" if it measured creativity or other cognitive capabilities.

A second substantive characteristic was type of treatment. A study was coded "1" if it included explicit suggestion (of rapid or easy learning) or de-suggestion (of slow or difficult learning), or "2"

if it included only implicit suggestion or de-suggestion. Explicit suggestion operational definitions generally featured imagery, relaxation, music, and dramatic presentations in various combinations with visual and verbal suggestions. Operational definitions of implicit suggestion tended to feature only some combination of relaxation and music.

The methodological characteristic that was taken into account was degree of internal validity. Originally, each study was ranked on a scale of "1" to "5" where "1" represented no control and "5" indicated excellent control to examine the relationship between effect size and extent of control. To report average effect sizes by methodological quality of study, levels "1" and "2" were collapsed into "weak" and "3" and "4" were collapsed into "strong." No study was rated excellent with a ranking of "5."

The dependent variables were measured on final status to achieve greater comparability. Studies reporting results using difference scores or residuals were not included, nor were studies that reported statistics from which effect sizes could not be recovered. All of the studies in the final set used a control group as the reference for contrasting various suggestology treatments.

Following procedures described in Glass, McGaw, and Smith (1981), 53 effect sizes were extracted from the reports. Each effect size was found by subtracting the mean of the control group from the mean of the treatment group. In some reports, the control group standard deviation had to be estimated from sums of squares or mean squares in analysis of variance summary tables. Thus, each effect size is the distance a

treatment mean is from a control mean in control group standard deviation units.

Results and Discussion

The distribution of effect sizes over all categories and outcomes was leptokurtic and positively skewed. The mean effect size was 1.70σ, but a more representative measure of central tendency for this distribution would be the median effect size, which was .75σ. The overall performance of subjects under suggestology was three-quarters of a standard deviation higher than the average performance of subjects under control conditions.

The subset of studies that focused on the outcome of foreign language acquisition (n = 11) produced a median effect size of .68σ. Those studies using the outcome of foreign language retention (n = 8) yielded a median effect size of 5.29σ. The reports that examined the effects of suggestology on affective outcomes (n = 20) resulted in a median effect size of .74σ. The remaining reports investigated cognitive achievement and creativity (n = 14) from which a median effect size of .65σ was obtained.

There was no evidence that the methodological quality of the studies covaried linearly with effect size (r = -.01). However, all of the foreign language outcome studies were rated "weak" in terms of internal validity, whereas most of the affective and cognitive outcome studies were judged "strong" in terms of control. The variability of effect size was greater for poorly controlled studies.

Table 1 summarizes the median effect sizes by outcome, degree of control, and type of treatment.

Insert Table 1 about here

For foreign language acquisition, the larger effect size was under the condition of direct suggestion (.74). Direct suggestion also produced the larger effect size for foreign language retention (8.00). Affective outcomes with strong control (.75), and cognitive capabilities, including creativity, with strong control (1.14) yielded effect sizes greater than those under weak control by direct suggestion. There were no studies that could be classified under indirect suggestion that were also well-controlled.

Despite the fact that all of the foreign language outcome studies, both acquisition and retention, were classified as lacking in methodological rigor, subjects under either direct or indirect suggestion perform about .7 standard deviation higher on the average on measures of foreign language acquisition than subjects under the control condition. More dramatic was the magnitude of the effect of direct suggestion on foreign language retention, nearly eight times the magnitude of the effect of indirect suggestion on foreign language retention. Given the uniformly low quality of these reports, a more conservative estimate of the effect size is probably about 1 standard deviation, which still represents a substantial difference in favor of the suggestion treatment.

Degree of control was related to effect size for the non-foreign language outcomes of affective characteristics (i.e., attitude, self-concept) and cognitive skills (i.e., school achievement,

creativity). Subjects under the suggestion treatment performed .75 standard deviation higher than control subjects in well-controlled studies of affective attribute, but only .43 standard deviation better in poorly-controlled studies, on the average. Subjects under the suggestion condition performed over 1 standard deviation higher than control condition subjects in well-controlled studies of cognitive capabilities, but only .35 standard deviation better in poorly-controlled studies, on the average.

Because the assumption of independent observations was violated, no statistical inferential procedures were applied, and no attempt to generalize beyond these results is warranted. Hypothesis testing procedures are not robust with respect to violations of this key assumption. Furthermore, the effects of violating this assumption on errors in decision making are unpredictable. Methods for compensating for "lumpy" data are neither widely accepted nor routinely employed by statisticians.

Since all reports came from a single journal devoted to this particular phenomenon, the results are probably influenced by publication bias. This conclusion must be qualified, however, by the fact that 10 of 53 effect sizes were zero or negative.

The evidence, taken on the whole, seems to support the conclusion that, for these studies, the Lozanov method with explicit suggestion is more effective than untreated controls relative to foreign language acquisition, foreign language retention, affective attributes, and cognitive achievement and creativity. Well-designed studies exhibiting a high degree of internal validity have produced effect sizes from .750

to over 1σ for affective outcomes and cognitive outcomes, respectively. One is less confident in the effect sizes for the foreign language outcomes due to weak internal validity and high variability. The findings are consistent with information processing theory (e.g., Sternberg, 1986).

References

Baur, R. S., & Eichhoff, M. (1981). Suggestopedia: Considerations and investigations. Journal of the Society for Accelerative Learning and Teaching, 6(4), 272-291.

Glass, G. V, McGaw, B., & Smith, M. L. (1981). Meta-analysis in social research. Beverly Hills, CA: Sage.

Lozanov, G. (1971). Suggestology. Sofia, Bulgaria: Izdatelsvo Navka; Iskustvo.

Lozanov, G. (1975). Excerpts from foundations of suggestology. Paper presented at the International Symposium on Suggestology, Arlington, VA.

Schuster, D. H., Prichard, A., & McCullough, J. (1981). Applying S.A.L.T. to elementary school spelling instruction. Journal of the Society for Accelerative Learning and Teaching, 6(3), 189-195.

Sternberg, R. (1986). Intelligence applied. New York: Harcourt Brace Jovanovich.

Studies Analyzed

Bordon, R. B., & Schuster D. H. (1976). The effects of a suggestive learning climate, synchronized breathing and music, on the learning and retetion of Spanish words. Journal of Suggestive-Accelerative Learning and Teaching 1(1), 27-39.

Boyle, C. L., & Render, G. F. (1982). The relationship between the use of fantasy journeys and creativity. Journal of the Society for Accelerative Learning and Teaching, 7(3), 269-275.

Capehart, M. R. (1976). A suggestopaedia-based strategy for teaching statistics to mathophobic college students. Journal of Suggestive-Accelerative Learning and Teaching, 1(3), 164-176.

Edwards, B. C., & Thomas, J. D. (1982). Accelerative learning techniques for self-concept enhancement. Journal of the Society for Accelerative Learning and Teaching, 7(1), 50-55.

Gamble, J., Gamble, D., Parr, G., & Caskey, O. (1982). The effects of relaxation training and music on creativity. Journal of the Society for Accelerative Learning and Teaching, 7(2), 111-119.

Mignault, L. (1979). Report on Scarborough Language Institute's experimental approach for the teaching of French 1975-77. Journal of Suggestive-Accelerative Learning and Teaching, 4(2), 104-110.

Nelson, W. (1979). Experimentation with the Lozanov method in teaching word retention to children with learning disabilities. Journal of Suggestive-Accelerative Learning and Teaching, 4(4), 228-271.

Prichard, A., Schuster, D. H., & Gensch, J. (1980). Applying S.A.L.T. to fifth grade reading instruction. Journal of Suggestive-Accelerative Learning and Teaching, 5(1), 52-57.

Schuster, D. H. (1976a). A preliminary evaluation of the suggestive-accelerative Lozanov method in teaching beginning Spanish. Journal of Suggestive-Accelerative Learning and Teaching, 1(1), 41-47.

Schuster, D. H. (1976b). The effects of the alpha mental state, indirect suggestion, and associative mental activity on learning rare English words. Journal of Suggestive-Accelerative Learning and Teaching, 1(2), 116-123.

Schuster, D. H., & Ginn, S. (1978). Evaluation of the suggestive-accelerative Lozanov teaching (SALT) method in teaching earth science to low socioeconomic ninth grade students. Journal of Suggestive-Accelerative Learning and Teaching, 3(1), 16-20.

Stanton, H. E. (1978). Improving lecturer performance through confidence building. Journal of Suggestive-Accelerative Learning and Teaching, 3(2), 123-128.

Stein, B. L., Hardy, C. A., & Totten, H. L. (1982). The use of music and imagery to enhance and accelerate information retention. Journal of the Society for Accelerative Learning and Teaching, 7(4), 341-353.

Walters, R. G. (1977). An experimental evaluation of suggestive-accelerative learning and teaching as a method of teaching vocational agriculture. Journal of Suggestive-Accelerative Learning and Teaching, 2(1&2), 36-62.

Table 1. Median Effect Sizes of the Four Types of Outcomes.

	Suggestion			
Outcome[c]	Direct	n	Indirect	n
1	.74	8	.68	3
2	8.00	5	1.13	3
3	.75[a]	14	--	
4	1.14[b]	9	--	

[a]Well-controlled; effect size for poorly-controlled was .43 (n=6)

[b]Well-controlled; effect size for poorly-controlled was .35 (n=5)

[c]1=foreign language acquisition, 2=foreign language retention, 3=affective attributes, 4=cognitive achievement and creativity